THE INSTITUTE OF PHYSICS
47 BELGRAVE SQUARE, LONDON, S.W.1.

BULLETIN

VOL. VI, No. 12 DECEMBER, 1955

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The Bulletin is not intended for general circulation : your copy should not therefore be passed to a library.

APPOINTMENTS VACANT

The inclusion of particulars of a vacancy must not be taken to imply that the Institute necessarily approves of the terms offered or that might be offered. Candidates should satisfy themselves that these are satisfactory, and they may always refer to the Institute for advice.

Vacancy on the staff of the Research Laboratories of the British Aluminium Company Limited

Physicist. The Research Laboratories of the British Aluminium Co. Ltd. have a vacancy for an Honours Graduate in physics, preferably aged 25 to 30. The vacancy is in the physical metallurgy group which is concerned at present with work on the effect of structure on the physical properties, particularly electrical and thermal, of aluminium alloys; alloy constitution; X-ray diffraction with particular reference to recrystallization studies; and electron microscopy. Applications should be made to the Director of Research, The British Aluminium Co. Ltd., Chalfont Park, Gerrards Cross, Bucks.

Electrical Condensers. Experimental electrical engineer required for condenser research and development in a well equipped Midlands laboratory. Box A.V.91, The Institute of Physics, 47 Belgrave Square, London, S.W.1.

Spectroscopic Research

Imperial Chemical Industries Limited, Dyestuffs Division, has vacancies in the Research Department for spectroscopists to apply infra-red, ultra-violet and Raman techniques to the investigation of the structure and properties of organic compounds. This work is not routine analysis but concerns a wide variety of problems of chemical and physical interest. Examples of topics recently studied include correlation of chemical reactivity with spectra, molecular interaction, hydrogen bonding, polarized infra-red investigation of crystals and polymers, spectra at low temperatures, fluorescent and phosphorescent spectra. A number of papers on these and similar topics have been published. Applications are invited from physical chemists and physicists with a good Honours Degree or higher qualifications, who are interested in this class of research. Experience of spectroscopy is not essential provided that the applicant has the necessary scientific background.

Good salaries will be paid dependent upon the qualifications and experience of successful candidates.

After joining the staff married men will receive a reasonable refund of removal (including travel) expenses, and to assist them in house purchase, facilities are available in approved cases for substantial loans; in addition, legal charges will be advanced. Applications with brief details of career to: Staff Dept., Hexagon House, Blackley, Manchester, 9.

The British Thomson-Houston Co., Ltd.

There are vacancies in the Research Laboratory at Rugby for **Physicists** with Degree Qualifications or Graduateship of The Institute of Physics. The work, which is closely allied to aspects of the Company's interests in the development of nuclear energy, is concerned with (*a*) Vacuum techniques, including the evolution and absorption of gases, and (*b*) the study of health hazard from radiations.

Applicants are invited to write to the Director of Research, British Thomson-Houston Co. Ltd., Rugby, giving details of their age, qualifications and experience, and quoting reference BW.

Senior Laboratory Technician required to take charge of dental materials testing laboratory. A knowledge of dental materials is not necessary but candidates should have physical, engineering or electrical knowledge and be familiar with the use of scientific instruments. Salary according to experience but not less than £500 per annum. Apply to the Secretary, Institute of Dental Surgery, Eastman Dental Hospital, Gray's Inn Road, W.C.1.

Dunlop Research Centre offer appointments to graduates in Physics for fundamental and development work relating to the reinforcement of rubber with textiles. The Research Centre is the headquarters of research and development for the whole company, which is a world-wide organization. A position in the Research Centre ensures to the research worker a diversity of interesting problems requiring initiative and ingenuity. Modern methods and equipment are available for their elucidation. Conditions of work are good. Personnel of suitable calibre will be considered for promotion to posts of special responsibility. Applicants are asked to write to the Personnel Manager, Dunlop Rubber Co. Ltd., Fort Dunlop, Erdington, Birmingham, 24, quoting reference J.M.85.

Senior Experimental Officer required by the **Atomic Weapons Research Establishment, Aldermaston,** Berks, to assist in research and development on problems associated with high voltage and high energy electrical discharges. Applicants should be at least 35 years of age but exceptionally candidates 31 years of age or over may be considered. A good basic understanding of electronics is necessary and practical experience of the generation of high voltage pulses and the measurement of very short time intervals would be an advantage. Applicants should have H.S.C. (Science) or equivalent but possession of a degree or H.N.C. in Electrical Engineering or Physics is desirable.

Salary: £1,155 – £1,350 p.a. (male). Contributory Superannuation scheme. Married officers now living outside the establishment's transport area will be eligible for housing on one of the Authority's estates or alternatively, assistance towards legal expenses incurred in house purchase will be payable. Requests for application forms by post card to the Senior Recruitment Officer at the above address. Quote reference A299/110.

Assistant Experimental Officer required by the **Atomic Weapons Research Establishment, Aldermaston,** Berks, for the design and application of pneumatic control systems mainly for the measurement of temperature and humidity. Minimum qualifications is H.S.C. (Science) or equivalent. Experience in the design and operation of such systems would be an advantage.

Salary £330 (age 18) – £718 p.a. (male).

Contributory Superannuation Scheme. Married officers now living outside the Establishment's transport area will be eligible for housing on one of the Authority's estates or alternatively assistance towards legal expenses incurred in house purchase will be available; until housed a lodging allowance may be payable.

Requests for application forms by post card to the Senior Recruitment Officer at the above address. Quote reference A.627/110.

Commonwealth of Australia

Vacancy for Chemist in Melbourne

Salary (in £A) : £1,394–£1,562. On commencement, salary would be £1,394 or higher according to qualifications, with annual increments to £1,562.

Duties : Undertake practical research on corrosion of lead-sheathed cables and ironwork buried in the soil, with particular reference to the effect of varying pH, salt content and oxidation reduction potential of soils.

Qualifications : Honours degree in Physics and/or Chemistry or equivalent qualifications and fundamental knowledge of electro-chemistry and thermodynamics to undertake metal corrosion research, experience in which is desirable.

Conditions : Permanent appointment to the Postmaster-General's Department. Free passage for appointee and dependants. Initial accommodation arranged. Full salary from date of embarkation. Superannuation, annual and sick leave conditions.

Persons Eligible : British subjects under 51 years of age with suitable qualifications.

Applications : To the Australian Post Office Representative, Australia House, Strand, W.C.2, by December 31, 1955.

Development Engineers and Physicists

Louis Newmark Limited of Croydon have a vacancy for a Development Engineer or Physicist in the instrument section of their laboratories. The work will involve the design and development of general and aircraft instruments through all the stages prior to production. The position offers considerable scope for initiative and advancement. Pension Scheme.

Please apply in writing giving full particulars to : Personnel Officer, Louis Newmark Ltd., Prefect Works, Purley Way, Croydon, Surrey.

The Atomic Weapons Research Establishment, Aldermaston, Berkshire, requires **Experimental Officers** :—

Post A (Ref. No. 824/110). To lead a small team engaged on the design of special electronic test equipment and the industrial application of electronic techniques. Minimum qualification H.S.C. (Science) or equivalent, but H.N.C. or degree in electrical engineering or physics preferred. Candidates must have a wide knowledge of electronic equipment and experience in fast transient techniques and be capable of designing equipment used in this field. Previous experience of the industrial application of electronics or of high voltage devices an advantage.

Post B (Ref. No. 825/110). To be responsible for climatic and other test work in connection with the investigation of small mechanical and electronic components used on a large variety of equipment. Minimum qualification is H.S.C. (Science) or equivalent, but H.N.C. or degree in electrical engineering is desirable. Applicants should have had a wide experience of electronic instruments and be familiar with type approval and testing to Government specifications.

Minimum age for both posts is 26 years.

Salary : £808–£988 p.a. (male). Contributory Superannuation Scheme. Married officers now living outside the Establishment's transport area will be eligible for housing on one of the Authority's estates; alternatively assistance towards legal expenses incurred in house purchase will be available; until housed a lodging allowance may be payable.

Requests for application forms by post card to Senior Recruitment Officer at the above address, quoting the appropriate reference number.

National Institute for Research in Dairying

(University of Reading)

Assistant Experimental Officer with sound theoretical and practical knowledge of electronic and controlling instruments required for duties in Physics Department. Candidates should preferably be graduates with a pronounced bent for instrument mechanics. Commencing salary within the scale £403½ p.a. (age 21) to £670, with superannuation. Applications, with the names of two referees, should be sent to the Secretary, N.I.R.D., Shinfield, Reading, Quote reference 55/23.

Imperial Chemical Industries Limited, General Chemicals Division, has vacancies for **Graduates** to work on a variety of interesting problems demanding a wide appreciation of physical principles as applied to automatic control. Facilities are available for development work both on laboratory and plant scales and the implementation of the results in collaboration with the engineering design staff. Excellent prospects exist for men of the right type and the successful candidates will be appointed to the permanent staff of the Company with membership of the Staff Pension Fund. Apply, giving full particulars, to Staff Manager, Imperial Chemical Industries Limited, General Chemicals Division, Cunard Building, Liverpool, 3.

There is a vacancy in the **Research Laboratory** at **Rugby** for an **Engineer** or **Physicist** to work on the development of filament and discharge lamps at high loadings. The work involves problems of lamp construction, circuitry and measurement of optical and electrical characteristics. Applicants are invited to write to the Director of Research, **British Thomson-Houston Co. Ltd.,** Rugby, giving particulars of their age, qualifications and experience, and quoting reference BJ.

Physicists wanted to specialize in the application of electronic, ultrasonic and magnetic techniques to the non-destructive testing of metals and alloys. Duties will involve adapting and perfecting existing methods for particular needs and developing improved methods. They do not embrace routine inspection, but the post carries responsibility for the successful functioning of the techniques applied by Inspection Department. Apply in writing with full particulars of qualifications and past employment to the Technical Director, **Henry Wiggin & Co. Ltd.,** Wiggin Street, Birmingham, 16.

Commonwealth of Australia

Australian Atomic Energy Commission

Physicist. A vacancy exists for this position in the grade of Principal Research Officer at a salary within the range £A2,228–2,588 per annum. Duties : to work in the field of reactor physics embracing such aspects as exponential and zero energy experiments and criticality and kinetic studies. Initially the appointee may be required to spend about two years in the U.K. and will subsequently be stationed at the Commission's Laboratories at Lucas Heights near Sydney. Qualifications : good Honours degree in physics plus at least 10 years research experience. Applications should be sent to reach the Secretary, Australian Atomic Energy Commission, G.P.O. Box 5343, Sydney, Australia, by December 31, 1955. Further information can be obtained from the Secretary or from the A.A.E.C. Liaison Office, Australia House, Strand, W.C.2.

City of Birmingham Education Committee
College of Technology
Headship of Department of Physics

The Governing Body invites applications for this post. Applicants should have high academic qualifications and teaching experience together with industrial or research experience in Applied Physics. The salary scale for the post is in accordance with the Burnham (Further Education) Scale for Grade V Headships: (Men) £1,515 × £25 – £1,665; and (Women) £1,212 × £20 – £1,332 (plus equal pay increment).

Form of application and details of the post, including conditions of appointment, may be obtained from the Registrar, College of Technology, Suffolk Street, Birmingham, 1, on receipt of a stamped addressed foolscap envelope. Completed forms should be returned to him not later than December 31, 1955.

K. R. Pilling,
Clerk to the Governing Body.

Central Electricity Authority, Research Laboratories, Leatherhead, require **Physicists.** Candidates should have a University degree or equivalent qualification in physics. Duties include research on problems associated with the generation and transmission of electricity. For some of the appointments preference will be given to candidates with some experience of either flame radiation temperature measurement, particle mechanics or X-ray diffraction. Salary within one of the following scales according to qualifications and experience :—

N.J.B. Grade 2	...	£925—£1,275
N.J.B. Grade 3	...	£865—£1,075
N.J.B. Grade 4	...	£675—£850
N.J.B. Grade 5	...	£475—£650

Applications, stating age, qualifications, experience, present position and salary to D. Moffat, Director of Establishments, Winsley Street, London, W.1, by December 16. Quote ref. BIP/702.

British Rayon Research Association

Physicists required for fundamental research into (*a*) mechanical properties and (*b*) optical properties of high polymers in relation to their chemical and physical structure. Applicants should have good Physics degree, preferably with some research experience. Superannuation under F.S.S.U. Applications, specifying vacancy to the Appointments Officer, Heald Green Laboratories, Wythenshawe, Manchester 22.

British Rayon Research Association

Physicists required with some electronics experience, for interesting technological research project. Candidates should have good physics degree. Apply to the Appointments Officer, B.R.R.A. Heald Green Laboratories, Wythenshawe, Manchester, 22.

Welwyn Electrical Laboratories Ltd.
Bedlington, Northumberland

Our extremely important research and development programme offers outstanding prospects to **Physicists** and **Electronic Engineers** seeking to join a leading manufacturer of electronic components employing 1,500 people.

Senior and Junior posts for graduates are available on interesting work connected with (*a*) new materials and techniques and (*b*) measuring instruments for the radio and electrical industries. Attractive salaries are offered. Contributory Pension Scheme. Five-day working week. Applications will be treated in confidence and should state full particulars of qualifications, experience, and present earnings to Personnel Manager.

Manchester
College of Technology
(Faculty of Technology in the University of Manchester)
Appointment of
Lecturer in Textile Chemistry

The Governing Body invites applications for a Lectureship in Textile Chemistry in the College of Technology with the title and status of Lecturer in the University of Manchester.

Candidates should be honours graduates in Physics or Chemistry. The Lecturer will be expected to carry out research on Physical Aspects of Textile Fibres, for which good facilities are available.

Salary: £650 per annum, rising by annual increments of £50 to £1,350 per annum. Commencing salary according to qualifications. Superannuation under the F.S.S.U., and family allowances.

Conditions of appointment and form of application may be obtained from the Registrar, College of Technology, Manchester, 1. The last day for the receipt of applications is Monday, February 6, 1956.

B. V. Bowden
Principal of the College.

Wanted—Physicist with experience in radiation or health physics and a flair for engineering design work. Applicants should be adventurous in outlook and prepared to work as member of a small enthusiastic team with chance of executive level to help build a flourishing organization. Any interested should write to Box No. 89, The Institute of Physics, 47 Belgrave Square, London, S.W.1, giving a brief outline of experience. Location of work, 15 minutes from London Bridge (S.R.).

Institute of Cancer Research: Royal Cancer Hospital, Fulham Road, S.W.3. Physicists required to assist in physical and clinical work associated with X-ray and isotope treatment and investigation. Successful candidates will be encouraged to undertake individual research. Appointments will be made in Grade III (£715 – £900 p.a.) and in Grade IV (£500 – £690 p.a.) F.S.S.U. in operation. Applications, with the names and addresses of three referees to the Secretary.

Textiles. Applications are invited for a senior technical appointment in a large organization involving control of an important section engaged on the development of new textile processes. The successful candidates must be capable of directing the work of a technical team of graduate scientists and engineers plus responsibility for a small labour force operating processing machinery. A degree in physical science and experience in textile processing on a large scale will be important qualifications. The starting salary for this appointment will be at least £1,250 per annum and there are good opportunities for progress. Applications will be treated in confidence. Box A.V.90, The Institute of Physics, 47 Belgrave Square, London, S.W.1.

Leybold Vacuum Sales Limited, Colquhoun House, 27/37 Broadwick Street, London, W.1. Required for High Vacuum Equipment. Applicants with technical and sales experience. Minimum qualification National Certificate in applied physics. Applications should be made in writing to the Company, giving details of sales and technical experience. References essential.

(*Continued on page v*)

THE INSTITUTE OF PHYSICS

Vol. VI, No. 12 **BULLETIN** DECEMBER, 1955

THE BULLETIN

When the Board invited Fellows and Associates to endorse its proposals concerning the supply of scientific journals which have hitherto been available to these grades free of charge, it was stated that the *Bulletin* was to be expanded and improved in form. From January next the *Bulletin* will appear in an entirely new format. The page area will be increased, the quality of paper improved so as to give a good reproduction of half-tone illustrations, a different layout of the page will be introduced and a coloured cover has been designed. These changes should result in a greatly improved appearance and in attractiveness to the reader.

The extent of the *Bulletin* will also be increased and it is intended to publish some of those lectures given to Institute Branches or Groups that are of wide interest and are not published in either of the Institute's scientific journals. As previously, other articles will be specially invited. Two or three full-length articles will be included in each monthly issue together with the usual features such as announcements of conferences, professional notices and news, news of members, book reviews and elections to membership. Honorary Secretaries of Branches and Groups have been invited to submit regular reports of their activities and these will be included in a new section. Each issue will also contain lists of papers, with abstracts, published that month in each of the Institute's scientific journals.

The Deputy Secretary who edits the *Bulletin* would welcome articles, items of correspondence or suggestions from members of ways in which the *Bulletin* can be further developed as a useful service.

Announcements of vacancies for physicists will continue to be published and other advertisements will now be accepted. Details of advertisement rates can be obtained from the Deputy Secretary.

NOTICES TO MEMBERS

Payment of 1956 Subscriptions

The procedure introduced last year for the payment of subscriptions worked extremely well and greatly reduced the cost and labour involved. It is, therefore, proposed to continue to notify members by an announcement in the *Bulletin* rather than by the earlier system of personal reminders. A form will be included in the January *Bulletin* and members are invited to use these in forwarding the 1956 subscription. They are asked not to send remittances until they receive the January *Bulletin*. The arrangement does not affect those who pay by Banker's Order.

Graduateship Examination

Students are reminded that December 31, 1955, is the last date for the receipt of applications to sit the 1956 Graduateship examination. Application forms may be obtained from the Secretary.

Institute Convention

Two Conventions of the Institute have previously been held, in Buxton in 1949 and Bournemouth in 1953. Arrangements have now been made for the next Convention to be held in Oxford in 1957. The dates fixed are July 10 (evening) to July 13. An organizing Committee under the Chairmanship of Dr. J. Topping has been set up and includes representatives of Branches and Groups.

A comprehensive scientific programme, including specialist Group lectures, will be arranged, but one of the chief aims of the convention is to enable members to meet together socially and several social functions are, therefore, being planned. The two previous Conventions have been highly successful and have been particularly well attended by members' ladies. It is expected that the Oxford convention will attract more members and ladies than the earlier ones and this should, therefore, be the largest conference ever arranged by the Institute.

Residential accommodation, mainly in colleges, has already been reserved and in making the arrangements the Committee has particularly borne in mind the need to offer facilities within the reach of younger members. Full details will be circulated later; members are asked to book the dates given.

Salary Enquiry

The Board has authorized the Deputy Secretary to conduct a further enquiry into the salaries and emoluments received by members. The three earlier reports have been well received and have been considered to be useful factual contributions to assessment of salaries for individual physicists. The new enquiry will be made early in 1956.

THE TECHNICAL BOOK BUSINESS

By A PUBLISHER*

THE aim of every technical publisher is to produce the ideal book, and the fact that it exists only in imagination does not damp the enthusiasm with which a new manuscript is examined. Sometimes the hope of something really good is realized and a best-seller or classic comes on the market but more often circumstances will dictate the production of what is called "a useful contribution to the literature" rather than a book to end books.

These circumstances are not within the publishers' control, neither are they within the author's. They are, rather, a combination of the qualities which all books possess to a greater or less degree, together with unpredictable influences such as topicality, cost of living, and the B.B.C. The controllable qualities which help to lift a good book into the best-seller class are familiar to most publishers : it would save occasional fruitless effort if they were familiar to most authors. They are :

(*a*) The book must be wanted by a wide section of the community;

(*b*) The author should be an authority on his subject, with preferably an established reputation ;

(*c*) The contents of the book must be up-to-date ;

(*d*) The style must be impeccable and the illustrations excellent ;

(*e*) The book must be economical to produce, and sell at a reasonable price ;

(*f*) The book should be unique, in order to maintain its appeal against competition.

Some of these qualities are interdependent, some are even contradictory. The publisher's task is to weigh them all, and if the scales come down in favour of the manuscript he will decide to accept it. Occasionally the scales are even, and he can throw in two more variable factors—his own instinct for a good book and the intangible factor known as "prestige." This may exceptionally outweigh all the more solid considerations and induce him to produce a book that may even involve a financial loss but will enhance his reputation as a sponsor of important literature.

The demand for a book on a given subject by a sufficiently large number of readers is the main influence which determines its accep-

* Unlike the medical and legal professions, publishers are not compelled to remain anonymous in print, but this one prefers not to take undue advantage of his colleagues.

tance, and it is a sad fact that many excellent manuscripts on specialized subjects do not see print because there are insufficient readers to make them worth publishing. On the other hand, each new discovery is liable to produce a crop of books by authors anxious to cash in on the popularity, forgetting that the same idea has occurred to several dozen of their colleagues. It is here that the reputation of an author will ensure that his manuscript is not classed with the also rans.

If the widest circulation is desired for a book, the author should be aware from the outset that it must be acceptable in European countries and in America. British publishers are fortunate in that English is a commonly accepted language, but they cannot take full advantage of this if the author overlooks details of idiom, symbols, or units.

Much may be said about the ideal author and his attributes, not only by the publisher but also by the readers of literature. Unfortunately, an authoritative and fluent author are seldom found in one person, and when such a rarity occurs he is usually too busy to write anything longer than a scientific paper.

It may happen that the urge to write comes late in a man's scientific career—just about the retiring age—and although he may then have the necessary time and facilities it is difficult for him to be up-to-date with the finer points in an expanding research or industry. The ability of an author to be able to put down his experience on paper while he is still at his intellectual best is so important for future scientists that it is a matter for constant wonder that British research organizations do not give their staff every encouragement to do so—even to providing them with an assistant to do the time-consuming detailed work.

The comment is often made that in any new development an American book appears before a British one. This does not necessarily mean that we are lagging in application, nor that we are more cautious before rushing into print ; it is more likely an indication of the value that American industry places on early publication of results and the practical help that is given to writers in putting their experience on record.

Early publication of new developments might be accelerated by printing the reports of conferences or symposia in book form, and at first sight this collection of papers by experts in a given field would appear to be the nearest approach to an authoritative and up-to-date book. The fact is that published reports or symposia do not appeal to the average reader to the same extent as a text-book, unless they are skilfully edited to read as a coherent and complete account. This aversion on the reader's part may be due to the differing style of the

various contributors, and the degree of overlapping or even contradiction in the various papers, which the editor can only partially remedy. The one- or two-author book is still preferred reading.

Any discussion on technical books inevitably comes round to the question of cost, and it is now common practice for book reviewers to conclude their remarks with a diatribe against the high price of knowledge. The criticism is mainly directed against American books, overlooking the important facts that for many years the exchange rate has been heavily against the British buyer and the American production costs are higher than British. It has frequently been suggested that paper covers would help to bring the price of text-books within the reach of students, but although this seems a tempting economy, it does not make a difference of shillings in the retail price, and the labour of collating, stitching and binding is still necessary whether a paper or board cover is finally drawn on the printed pages. All things considered, a book is still excellent value for the money : for a few pounds a student may be able to buy the results of a lifetime's experience, and it is certain that if the author of a book were consulted professionally he would charge considerably more for the advice that he has made available in permanent form.

There is only one way to cheapen the price of books effectively, and that is to sell more copies. To sell more copies, the book must be wanted by a large section of the community . . .

and this is where we came in.

THE REGISTER

ELECTIONS TO MEMBERSHIP

An asterisk (*) indicates transfer from another grade

Fellows

*Allen, Ronald George, B.Sc., Ph.D., Director and Secretary, The Water Research Association, Redhill, Surrey.

*Brown, Cedric John, Ph.D., D.Sc., Technical Officer, Imperial Chemical Industries Ltd., Manchester.

Calnan, Arthur Edward, B.Sc., Ph.D., Principal Physicist, Fulmer Research Institute, Stoke Poges.

*Farr, Reginald Francis, M.A., Principal Physicist, Deputy Chief Clinical Physicist, Christie Hospital and Holt Radium Institute, Manchester.

*Gladwin, Arthur S., Ph.D., D.Sc., Lecturer in Electrical Engineering, University of Sheffield.

*Harris, William J., M.Sc., Chief Physicist, De Havilland Aircraft Company Ltd., Edgware.
*Norris, Alan W., B.Sc., Principal Scientific Officer, British Ceramic Research Association, Stoke-on-Trent.
*Randall, Richard F. Y., B.Sc., Ph.D., Senior Lecturer in Physics, South-West Essex Technical College, London.
Robertson, John K., M.A., Ph.D., Emeritus Professor of Physics, Queen's University, Canada.
Rogers, Gordon L., M.A., Ph.D., Senior Lecturer, Victoria University College, Wellington, New Zealand.
Thompson, Norman, B.Sc., Ph.D., Lecturer, Senior Tutor in Physics, University of Bristol.

Associates

Bentley, Roy Edward, B.Sc., Ph.D., H.M. Forces.
*Black, Paul Joseph, B.Sc., Ph.D., Research Student, Cavendish Laboratory, Cambridge.
*Bernstein, Harold A., M.Sc., Physicist, Simmonds Aerocessories Ltd., Treforest.
*Fearn, Ronald Wilfred, B.Sc., Physicist, British Celanese Ltd., Spondon.
*Haywood, John H., M.Sc., Scientific Officer, Royal Naval Scientific Service, Dunfermline.
*Houseman, David, B.A., Ph.D., Research Fellow, Department of Metallurgy, University of Sheffield.
*Kirkman, John Roy, B.Sc., Research Assistant, Department of Physics, University of Durham.
Liley, Peter Edward, B.Sc., Research Assistant, Chemical Engineering Department, Imperial College, London.
Lloyd, Anthony P., M.Sc., Experimental Officer, National Physical Laboratory, Teddington, Middlesex.
Mack, Cornelius, M.A., Mathematician and Physicist, British Cotton Industry Research Association, Manchester.
*Miller, Gerald G., B.Sc., Research Physicist, Tootal Broadhurst Lee Company Ltd., Manchester.
*Moore, Alan Francis, B.Sc., Ph.D., Administrative Assistant, The Royal Society, Burlington House, London.
Moore, Richard Douglas, B.Sc., Assistant Lecturer, Guys Hospital Medical School, London.
Pryce, William G., B.Sc., Lecturer in Physics, Derby and District College of Technology.
Rayner, James H., M.A., D.Phil., Research Chemist, Unilever Ltd., Cheshire.
*Roberts, Lois M., M.A., Scientific Officer, Radar Research Establishment, Ministry of Supply.

Robbins, Eric John, B.Sc., Ph.D., Senior Scientific Officer, United Kingdom Atomic Energy Authority, Capenhurst, Cheshire.

Roy, Madhumongal, M.Sc., Physicist, Indian Jute Mills Association Research Institute, Calcutta.

*Sheldon, Eric, B.Sc., Ph.D., H.M. Forces.

Youell, Ronald Frederick, B.Sc., Ph.D., Lecturer in Physics, University of Leeds.

Graduates

*Baker, Albert F., B.Sc., Research Assistant, The Polytechnic, London.

Barron, Kenneth, B.Sc., Research Assistant, The Polytechnic, London.

Blackburne, Norman Frederick, B.A., Physicist, British Telecommunication Research Ltd., Bucks.

Blow, David Mervyn, B.A., Research Student, Cavendish Laboratory, Cambridge.

Bowen, Philip H., Assistant Experimental Officer, United Kingdom Atomic Energy Authority, Harwell.

Brett, Lewis R., B.Sc., H.M. Forces.

Bryce, John H., B.Sc., Physicist, The British Aluminium Co. Ltd.

Collier, Godfrey Emanuel, B.Sc., H.M. Forces.

Crowe, Alan, B.Sc., Research Student, Queen Mary College, University of London.

Davies, Alan Lindsay, B.Sc., Acting Principal, College of Further Education, Aberdare, Glamorgan.

Dickinson, Edward Bruce, B.Sc., Education Officer, Royal Air Force.

Disney, Frank, B.Sc., Head of Physics Department, St. John College, York.

Dollimore, John, B.Sc., Tyre Technical Assistant, The Dunlop Rubber Co. Ltd., Birmingham.

Dunbar, Peter Hyslop, B.Sc., Engineering Physicist, Marconi's Wireless Telegraph Co., Ltd., Essex.

*Foster, Margaret Elizabeth, B.Sc., Research Student, University of Birmingham.

*Gale, Noel H., B.Sc., Research Physicist, Medical College of St. Bartholomew's Hospital, London.

Giles, John Crutchlow, B.Sc., Postgraduate Research Student, University of Sheffield.

*Griffiths, Richard J., B.Sc., Postgraduate Apprentice, De Havilland Aircraft Company Ltd., Hatfield.

Gurney, Ian Denies Cecil, B.A., Flying Officer-Radio Instructor, Royal Air Force.

Heydon, Alan T. B., B.Sc., Assistant Technical Officer, Imperial Chemical Industries Ltd., Witton.

Hine, Raymond, B.Sc., Research Student, Physics Dept., University College of South Wales and Monmouthshire, Cardiff.

Hogg, Arthur, B.Sc., Research Student, University of Sheffield.

*Hookway, Brian R., B.Sc., Science and Mathematics Master, Walworth County Secondary School, London.

Kenward, Colin John, B.Sc., Assistant Experimental Officer, United Kingdom Atomic Energy Research Establishment, Harwell.

Lill, Geoffrey David, B.Sc., Research Student, Mining Department, University of Leeds.

Linsley, George F., B.Sc., Scientific Officer, United Kingdom Atomic Energy Authority, Springfields.

*Moulson, Anthony James, B.Sc., Research Student, University of Leeds.

Rees, Brian L. L., B.Sc., Technical Assistant, British Nylon Spinners Ltd., Pontypool.

Roberts, John, B.Sc., Research Student, University College of Wales, Aberystwyth.

Stone, Leonard, B.A., Physics Master, Huddersfield College.

Tanner, Peter G., B.Sc., Graduate Apprentice, Marconi's Wireless Telegraph Co. Ltd., Chelmsford.

Thomas, Godfrey Stuart, B.Sc., Research Student, University of Leeds.

Thompson, Brian J., B.Sc., Demonstrator in Physics, College of Technology, University of Manchester.

Tozer, Bryan Allen, B.Sc., Research Student, Department of Electrical Engineering, University of Liverpool.

Wales, Ian Malcolm, B.Sc., Physicist, Central Research Department, The Morgan Crucible Co. Ltd., London.

Warren, Stanley E., B.Sc., Scientific Officer, United Kingdom Atomic Energy Authority, Nr. Preston, Lancs.

*Watson, Herman Charles, B.Sc., Research Student, College of Technology, Manchester.

*Webster, Roy, B.Sc., Technical Engineer, Guided Weapons Dept., Bristol Aeroplane Co., Ltd.

*Whitehead, Norman Kenyon, B.Sc., Research Assistant, University of Manchester.

*Winstanley, Roy J., B.Sc., Research Student, Department of Physics, Brighton Technical College.

Forty-seven Students and two Subscribers were also elected.

Research Laboratory
Associated Electrical Industries Limited
Aldermaston Court

Graduate Scientist required by a long-term research laboratory serving a large group of companies, to specialize in research applications of radioactivity. The successful candidate will be expected to carry out radiotracer investigations in one of the fields in which the Laboratory is engaged, depending on his qualifications and interests, whilst also providing expert advice and assistance with radioactivity work generally. Qualifications required are a degree, or equivalent, in physics, chemistry or metallurgy ; some research experience is desirable and a knowledge of radioactivity techniques and apparatus would be an advantage. Salary will depend on qualifications and experience. Details of these should be given when applying to : Personnel Officer, Research Laboratory, Associated Electrical Industries Limited, Aldermaston Court, Aldermaston, Berkshire. Please quote reference No. S/G/3.

Research Laboratory
Associated Electrical Industries Limited
Aldermaston Court

An Honours Graduate in Physics with some research experience is required to join a group studying the fundamentals of wear and lubrication. He will work on a physical problem demanding ability in both experiment and theory. In the experimental work there is the challenge to devise and develop techniques for the measurement of transient phenomena in regions which are small and inaccessible. An interest in the properties of metals, particularly with respect to deformation, would be an advantage. The problem is of extreme importance in mechanical engineering and there will be the stimulus of an interchange of ideas and experience with some of the engineers of the very large A.E.I. family of companies. Ideal conditions exist for the engineering application of new and proven knowledge. The publication of original work is encouraged.

Applications should be made, quoting reference S/G/2, to the Personnel Officer, Research Laboratory, Associated Electrical Industries Limited, Aldermaston Court, Aldermaston, Berkshire.

Chemists required for the development and application of new elastomers. Applicants should have an Honours Degree or its equivalent, and experience in polymer chemistry. A four figure salary is envisaged. Location South Midlands. Box A.V.92, The Institute of Physics, 47 Belgrave Square, London, S.W.1.

Ilford Limited. The Physics Research Laboratory, Brentwood, Essex, requires a **Graduate,** preferably under 28, to design electronic instruments and process control gear for use in the Company's Laboratories and Factories. He will be engaged also in research projects involving the use of d.c. amplifiers, timing circuits and servo-systems. A basic knowledge of optics and photography will prove useful but is not essential. A physics, electrical power or communications degree is equally acceptable provided it is accompanied by imagination, enthusiasm and a practical knowledge of electronic circuitry. The successful candidate will work with one Senior Research Engineer and several assistants responsible for assembly and maintenance of equipment. Apply in writing to Research Director, Ilford Limited, Ilford, Essex.

Ilford Limited. The Physics Research Laboratory, Brentwood, Essex, requires a **Graduate,** preferably under 28, to join a group involved in general experimental research and development problems, some mainly of a physical nature. An important section of the work is concerned with the physical aspects of colour as applied to colour photographic processes, but no experience in the subject is necessary. An interest in optics and in mechanical and electrical techniques is an advantage. Apply in writing to Research Director, Ilford Limited, Ilford, Essex.

University of Reading

Two Physicists are required for work on the electrical and optical properties of non-metals. Applicants should have at least a Second Class Honours degree in Physics and some research experience is desirable but not essential. Salary will be in the range £400 – £550 p.a. Applications should be sent as soon as possible, but not later than January 31, 1956, to the Professor of Physics, The University, Reading.

R. & A. Main Limited invite applications from young graduates to fill the following positions :—
(*a*) **Chemists** or **Physicists** for research and development work on domestic appliances ;
(*b*) **Chemical Engineers** or **Chemists** to investigate and control manufacturing processes.

The positions offered are permanent and progressive, and salaries commensurate with age and experience will be paid to successful candidates. Applications giving full details as to age, experience and qualifications to Personnel Manager, R. & A. Main Ltd., Gothic Works, Angel Road, Edmonton, N.18.

Australia—University of Sydney

Applications are invited for **Research Studentships/Fellowships in the School of Physics** for the year 1956.

The successful applicants will be appointed, according to qualifications and experience, to a Research Studentship (£A750 – £A850 per annum) or to a Research Fellowship (£A1,100 – £A1,500 per annum).

Fares to and from Australia not exceeding a total of £A200 may be paid.

The awards will normally be made for a period of two years, after which the tenure may be renewed for a further period. Pre-doctoral candidates will normally be awarded Research Studentships and will be expected to pass the Physics IV examination at Honours B.Sc. level before proceeding to work for the Ph.D. degree. Study for this examination may take up part or all of the first year in Sydney. Experimental work in the School of Physics is directed by Dr. E. P. George and covers a wide field of high energy nuclear physics research. Nuclear research emulsions, cloud chambers and counters are used in the experiments at present being carried out. Among the candidates who are experimentalists preference will be given to those interested in nuclear emulsion work. Theoretical research into problems of nuclear, atomic and solid state physics is being actively pursued under the direction of Professor H. Messel. A large high-speed digital computer is under construction.

Applications, giving names of three referees, should be forwarded to reach the undersigned not later than January 31, 1956. Overseas candidates are required to forward a copy of the application to the Secretary of the Association of Universities of the British Commonwealth, 36 Gordon Square, London, W.C.1.

M. A. Telfer,
Registrar.

Theoretical Nuclear Physicist
required by
The Atomic Weapons Research Establishment, Aldermaston, Berks.

To carry out fundamental research in nuclear physics, particularly on the theory of nuclear structure. The successful applicant will be expected to keep abreast of current developments in this field and opportunities will be provided and encouragement given for visits to Universities and to the Atomic Energy Research Establishment at Harwell to keep in touch with experimental and theoretical developments.

He will be called upon to advise on the best values of nuclear constants to use in numerical calculations and on the design and interpretation of nuclear physics experiments. The finest nuclear physics experimental facilities are being built up in the Establishment and there is also available a large electronic computing machine. Applicants should have a First Class Honours Degree in Mathematics or Physics together with several years postgraduate research experience in nuclear physics.

Salary : To be assessed within the range of £1,270 – £2,200 according to qualifications and experience. Contributory Superannuation scheme. Successful married officers now living outside the Establishment's transport area will be eligible for housing on one of the Authority's estates; alternatively assistance towards legal expenses incurred in house purchase will be payable. Requests for application forms by post card to the Senior Recruitment Officer at the above address. Quote reference 799/110.

Physicists. Simon-Carves Ltd. require physicists for research work in a number of fields—fluidization, flame combustion, electro-precipitation, small particle behaviour, reaction kinetics, applied thermodynamics and pneumatic techniques. Candidates should be university graduates or have professional qualifications of Associate Membership standard. Salaries will be in the range £750 – £1,250, depending on experience. The posts are at Stockport. Working conditions are excellent ; scope is good ; a pension scheme is in operation. Please send brief relevant applications (quoting ref. YB.7) to Staff and Training Division, Simon-Carves Ltd., Cheadle Heath, Stockport.

Theoretical Physicist required by **The United Kingdom Atomic Energy Authority, Aldermaston, Berks.,** to work on problems of size distribution in coagulating and dispersing particulate suspension. Candidates should hold a first or second class honours degree in Physics and should have had at least three years post-graduate research experience preferably in the field of motion and coagulation of particulate suspension.

Salary : The post would be graded either Principal or Senior Scientific Officer and the salary ranges are :—Principal Scientific Officer £1,270 – £1,680 p.a. (male) ; Senior Scientific Officer £1,105 – £1,270 p.a. (male).

Contributory Superannuation scheme. Successful married officers now living outside the Establishment's transport area will be eligible for housing on one of the Authority's estates; alternatively assistance towards legal expenses incurred in house purchase will be payable.

Requests for application forms by post card to the Senior Recruitment Officer at the above address. Quote reference 726/110.

Physicists required by **Ministry of Supply** Research and Development Establishment chiefly near Farnborough, Hants., Malvern, Worcs., Salisbury, Wilts., and Sevenoaks, Kent, for work on Guided Weapons, Rockets, Gas Turbines, Aerodynamics, Aircraft Structures and Equipment, Armaments, Instrumentation including optics, Electronics. Applicants with 1st or 2nd class Hons. degree may be considered for **Scientific Officer** class (min. age 21) with initial salary £488 10s. – £885 (Superannuable), and those with lower quals., e.g., pass degree, H.N.C., etc., with min. of H.S.C. (Science) or equiv. may be considered for **Experimental Officer** class, with salary in ranges, E.O. (min. age 26) £745 – £920 ; A.E.O. £306 10s. (age 18) – £670. Equal pay scheme. Application forms from M.L.N.S., Technical and Scientific Register (**K**), 26 King Street, London, S.W.1., quoting A.398/5A.

Bakelite Limited have a vacancy at their Tyseley, Birmingham, works for a young Physicist. Applicants should have a B.Sc. degree or equivalent. The work is concerned with the physical testing of plastics. Salary will be in the range of £600 to £800 per annum in accordance with age and experience.

Applications should be addressed to Personnel Manager, Bakelite Limited, Redfern Road, Tyseley, Birmingham.

British Petroleum Co. Ltd. has vacancies for **geophysicists** on its exploration staff. Candidates should have an honours degree in physics with subsidiary mathematics and/or geology, but candidates with a general degree will be considered. The work involves delineation of underground rock structure by seismic, gravitational and magnetic techniques and offers considerable scope for men with initiative who are prepared to travel and to work abroad. Normal leave is four months after two years' foreign service.

When conditions permit, facilities are afforded for married men to have their families with them on foreign tours.

Basic salary is commensurate with age and experience, commencing at £870 for young, inexperienced graduates. Appropriate allowances are paid whilst on foreign service. Generous pension scheme.

Applications quoting F.107, should be addressed to Box 1442, c/o 191 Gresham House, E.C.2.

Sunderland Technical College
Principal : D. A. Wrangham, M.Sc.(Lond.), Sen.Wh.Sc., A.C.G.I., D.I.C., M.I.Mech.E.

Applications are invited for the post of **Grade B Assistant** in the Physics Department.

Candidates must be graduates in Physics. Experience in teaching and industry and a knowledge of some branch of Applied Physics are desirable but not essential.

Salary will be in accordance with the Burnham (Technical) Scale for Assistant Lecturers (Grade B) : £525 × £25 to £820 per annum plus allowances for degree and training and increments for approved teaching and industrial experience.

Further particulars may be obtained from the Registrar, The Technical College, Sunderland, Co. Durham.

Applications must reach the undersigned as soon as possible after the appearance of this advertisement.

W. Thompson,
Director of Education.

15 John Street,
Sunderland.

COURSES

Borough Polytechnic
Borough Road, S.W.1.
A Course of Thirteen Lectures on Nuclear Particle Techniques

will be given by members of the staff of the Atomic Energy Research Establishment and by Physicists from the London Medical Schools on Tuesday evenings at 7 p.m. The first lectures will be held on Tuesday, January 17, 1956.

These lectures will cover the fundamentals of Nucleonic Instruments and their applications in Industry, Medicine and Reactor Instrumentation.

Further particulars from the Secretary, Borough Polytechnic, Borough Road, London, S.E.1.

MEMBER'S ADVERTISEMENT

Chartered Patent Agent (B.Sc., A.Inst.P.) : professional services available. Box No. 80, The Institute of Physics, 47 Belgrave Square, London, S.W.1.